If you need space for calculations in any question use the space below *marked with the number of that question*.   DO NOT FORGET to write your FINAL ANSWER in the space provided THE QUESTION PAPER.

You are advised to return this sheet with the question paper.

1.	2.
3.	4.
5.	6.
7.	8.
9.	10.
11.	12.
13.	14.

15.	16.
17.	18.
19.	20.
21.	22.
23.	24.
25.	26.
27.	28.
29.	30.

DAY VOCATIONAL CERTIFICATE EXAMINATIONS, 1973

MATHEMATICS - PAPER I

MONDAY, 11th JUNE - 9.30 - 11.30 a.m.

INSTRUCTIONS

(a) Before attempting to answer any question you should write your Examination Number in the space provided on top of this page and also on the ruled paper provided.

(b) Final answers are to be written down in the spaces provided on this paper.   Space is provided on the ruled page for any other work you may wish to do.

(c) Mathematical Tables may be used in answering this paper.   Ask the Superintendent for the tables when you need them.

(d) All questions may be answered and you should attempt as many as possible.

(e) Questions 1 to 10 carry 1 mark each, questions 11 to 30 carry 2 marks each.

(f) Before attempting to answer any question you should read the instructions on top of the ruled sheet provided.

1. What is the sum of $\frac{1}{2}$ and $\frac{1}{3}$?   Ans. _____

2. Multiply (+6) by (-4).   Ans. _____

3. What is the value of $(0\cdot4)^2$?   Ans. _____

4. At 4.00 p.m. through how many degrees has the hour-hand of a clock turned from its position at 12.00 noon ?   Ans. _____

5. List the elements of $\{x \mid x$ is a prime number between 10 and 20$\}$.   Ans. _____

6. From your table book write down the value of $\sin 56^{0}$.   Ans. _____

7. Your mother puts some meat in the oven to cook at 10.30 a.m.   The cooking time is given as $2\frac{1}{2}$ hours.   At what time should the meat be taken from the oven ?   Ans. _____

8. What is the value of x if $3x + 4 = 10$?   Ans. _____

9. Write down the answer you get when you add the three expressions: $(2x + 3)$, $(5x + 4)$ and $(6x - 5)$.   Ans. _____

10. Write the binary number 111 in the denary system.   Ans. _____

11. Multiply $2x^3$ by $4x^2$.   Ans. _____

12. Simplify the expression $(0\cdot15 \times 10^4 + 0\cdot06 \times 10^3 + 0\cdot2 \times 10)$.   Ans. _____

13. What is $\frac{6}{7} \div \frac{3}{14}$?   Ans. _____

14. What is (i) the largest number, and (ii) the smallest number, of the set of numbers: $\{1, 0\cdot7, 2\cdot8, 0\cdot091, 1\cdot63, 0\cdot88\}$?

Ans. (i) _____
Ans. (ii) _____

15. A man puts £2000 into a bank and gets yearly interest at the rate of 7%.   How much money does the man get as interest at the end of the year ?   Ans. _____

16. Write down the square root of 79.   (You may use your table book.)   Ans. _____

17. If $27\cdot8 = 10^m$ then $m = \log_{10} 27\cdot8$.   With the aid of your table book find the value of m.   Ans. _____

18. Write down the answer you get when you simplify the expression $3(2x - 1) + 2(x - 3)$.   Ans. _____

19. What is the value of the expression $x^2 - 7x + 12$ when $x = 2$?   Ans. _____

20. Fractorise $x^2 + 5x + 6$.   Ans. _____

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21. Multiply $(x + 3)$ by $(x - 2)$.

Ans. _____

22. Given that $(a, b) \uparrow (c, d) \uparrow (b, x)$ and that the points a, b, c and d are as shown in the diagram, show the position of the point x.
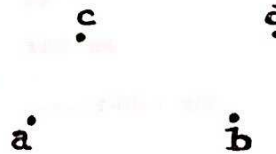
23. The height of a cylinder is 10 cm and the diameter of its base is 14 cm. Find the volume of the cylinder.

Ans. _____

24. The diagram shows the shape of a large conference table. Find the area of the top of the table if the overall length is 10 m and the overall width is 5 m. The corner cuts are made 1 m from the corners.
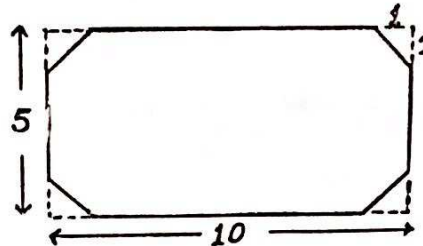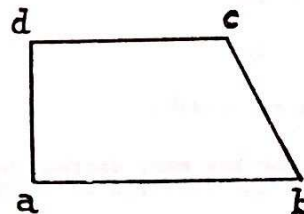
Ans. _____

25. A television set is marked £80. If in addition £16 has to be paid as tax, what percentage of the marked price is the tax charged ?

Ans. _____

26. Draw the image under the translation $\vec{ab}$ of the set of points shown in the diagram.

27. Write down any fraction which is greater than $\frac{1}{3}$ but is less than $\frac{1}{2}$.

Ans. _____

28. A grocer mixes 10 kilogrammes of a tea costing £1·60 per kilogramme with 20 kilogrammes of a tea costing £1·00 per kilogramme. At what price per kilogramme must he sell the tea so as to make a profit of 20p on each kilogramme of the mixture ?

Ans. _____

29. A boy flying a kite lets out 100 m of string. If the string makes an angle of $30°$ with the ground, what is the height of the kite above the ground ?
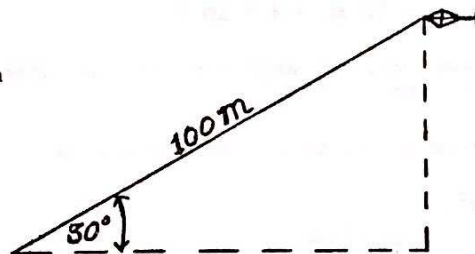
Ans. _____

30. When asked to solve for x and y the simultaneous conditions $x + 2y = 11$ and $2x + y = 7$, Michael said the answer was $x = 2$, $y = 3$, while Mary got $x = 7$, $y = 2$ as an answer. Tom's answer was $x = 1$, $y = 5$. Ann's answer was $x = 3$, $y = 1$ and Noel got $x = 5$, $y = 3$. Who gave the correct solution to the question ?

Ans. _____

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NOTE   TO   EXAMINATION   CANDIDATE

If you still have examination time left you are advised to spend it checking your answers and correcting any mistakes you have made.

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